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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/477,570	01/06/2000	DANIEL J. KNABENBAUER	AUS990884US1	9429

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EXAMINER	
NGUYEN, KEVIN M	
ART UNIT	PAPER NUMBER
2674	13

DATE MAILED: 02/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/477,570	KNABENBAURER, DANIEL J.	
	Examiner	Art Unit	
	Kevin M. Nguyen	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 December 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,4-24,26 and 28-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,4-13,19-24,26,28-39 and 45-49* is/are rejected.

7)☒ Claim(s) *14-18 and 40-44* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The amendment filed on 12/9/2002 is entered. The rejections of claims 2, 4-13, 19-24, 26, 28-39 and 45-49 are maintained. Claims 14-18 and 40-44 are objected.

2. The indicated allowability of claims 3-5, 9-18, 27-30 and 34-44 of the office action filed on 9/4/2002 are withdrawn in view of the newly discovered reference(s) to Krembs and MacFarlane (IDS). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2, 4, 6-8, 19, 20, 26, 29, 31-33 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krembs (US 3,585,443) in view of Rand (US 4,790,629).

As to claims 2 and 26, Krembs teaches a three-dimensional gas display device wherein a plurality of gas discharge matrices are stacked forming a three-dimensional array. Each of the gas discharge matrices is formed by two planes of parallel glass enclosed wires 1 and 3, the glass enclosed wires of one plane running perpendicular to the other plane of glass enclosed wires 5 connecting to X-Y-Z display control and power supply 11 corresponding to the claimed a base coupled to the three dimensional matrix the base having electrical circuitry for powering and controlling the three dimensional

matrix (col. 2, lines 26-28). In each intersection of each glass coated wires 1 with each enclosed wire 3 forms an electrode pair (col. 2, lines 14-17). Means are provided for applying a potential difference between the two wires intersecting at any point in the three dimensional array causing a continuous electric discharge at this point. By correctly selecting the intersecting points, a three dimensional design can be displayed corresponding to the claimed a three dimensional matrix of light emitting elements. The glass wire (1,3) performs as an anode and a cathode (figure 3).

Therefore, Krembs teaches all of the claimed limitations of claims 2 and 26, except for "wherein each of the pixels has a red light emitting element, a green light emitting element, and a blue light emitting element." However, Rand teaches a three-dimensional shape that includes baffles (walls) 103 to form a series of cells 105, each of cells in the shape of triangles (figure 1B, col. 4, lines 27-35). The model of each cell creates a pleasing impression of three-dimensional display shape including the red, green, and blue light sources 115, 119, 121 (col. 5, lines 44-48). Since the display geometry of the three-dimensional display device affords the designer the ability to produce the arbitrary patterns of prior art system (col. 5, lines 27-29). Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize the red, green, and blue light source 115, 119, 121 taught by Rand in Krembs' each display pixel because this would allow the use of multiple diffuser surfaces spaced at varying distances to further increase the dimensionality of the effect (col. 2, lines 65-68 of Rand).

As to claims 4 and 29, Krembs teaches the glass wire (1,3) perform as an anode and a cathode (figure 3).

As to claim 19, Krembs teaches the glass-enclosed wires 1 and 3 of each two-dimensional gas discharge matrix 5 connecting to X-Y-Z display forming a plurality of pixels that are adjacent side by side are controlled by X-Y-Z display controller (controller system as claimed) and power supply 11 (col.2, lines 26-28).

As to claims 6, 7, and 31-33, Krembs teaches the glass-enclosed wires 1 and 3 of each two-dimensional gas discharge matrix 5 which are arranged in X-Y-Z coordinates forming substantially a plurality of pixels that are adjacent side by side (col. 2, lines 26-28).

As to claim 8, Krembs teaches the glass-enclosed wires 1 and 3 of each two-dimensional gas discharge matrix 5 connecting to X-Y-Z display forming a plurality of pixels that are adjacent side by side are controlled by X-Y-Z display controller and power supply 11 (col. 2, lines 26-28).

As to claims 20 and 45, Rand teaches the red, green, and blue light sources 115, 119, 121 that are controlled by a printed circuit card, connected to the display unit to conductors supplying power and control signals (col. 4, lines 50-53).

5. Claims 5-13, 21-24, 28, 30-39 and 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krembs in view of MacFarlane (US 4,790,629).

As to claims 5 and 30, Krembs teaches all of the claimed limitations of claims 2 and 26, except for an anode of one of pixels is shared by at least one other pixel. However, MacFarlane teaches a three dimensional array of optical voxels in a cubic

packed configuration other voxels placement geometries may be utilized in this invention (figure 2 and 4A, col. 4, lines 64-67). A cubic optical voxels performs as an anode and a cathode corresponding to the claimed an anode of one of the pixels is shared by at least one other pixel. It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize the a cubic optical voxels taught by MacFarlane in Krembs's three-dimensional display device because this would reduce cross-talk, and improve channeling of energy to the voxels (col. 3, lines 8-11 of MacFarlane).

As to claims 6 and 31, MacFarlane teaches a three dimensional array of optical voxels in a cubic packed configuration other voxels placement geometries may be utilized in this invention (a face of one of the pixels is shared by another pixels, figure 2 and 4A, col. 4, lines 64-67).

As to claims 7 and 32, MacFarlane teaches a three dimensional array of optical voxels in a cubic packed configuration other voxels placement geometries may be utilized in this invention (the side of the pixel is the side of the another neighboring pixel, figure 2 and 4A, col. 4, lines 64-67).

As to claims 8 and 33, MacFarlane teaches fiber optic bundle 10 may cleaved flat and placed adjacent to a two dimensional switching of shutter array 50 (electrical connection between the pixels, signal source and power sources are positioned in seams between pixels, col. 6, lines 46-49).

As to claims 9, 34 and 35, MacFarlane teaches a three dimensional array of optical voxels in a cubic packed configuration other voxels placement geometries may

be utilized in this invention (figure 2 and 3C, col. 4, lines 64-67), a cubic optical voxels performs as an anode and a cathode corresponding to the claimed an anode of one of the pixels is shared by at least one other pixel. A side of cubic optical voxels performs as an anode bus line is positioned in a seam from a first anode of a pixel to a second anode of another pixel. A side of cubic optical voxels performs as a cathode bus line is positioned in a seam from a cathode of a pixel to a cathode of another pixel.

As to claims 10 and 36, MacFarlane teaches red voxel 60, green voxel 62, and blue voxel 64 may be clustered together as shown in figure 6 (col. 6, lines 23-24), a three dimensional array of optical voxels in a cubic packed configuration other voxels placement geometries may be utilized in this invention (figure 2 and 3C, col. 4, lines 64-67), a cubic optical voxels performs as an anode and a cathode corresponding to the claimed an anode of one of the pixels is shared by at least one other pixel. A side of cubic optical voxels performs as a first anode of a first red light emitting element of a pixel is connected to a second anode of a second red light emitting element in another pixel by a straight line bus connection along a seam in any direction in the three dimensional matrix.

As to claims 11 and 37, MacFarlane teaches red voxel 60, green voxel 62, and blue voxel 64 may be clustered together as shown in figure 6 (col. 6, lines 23-24), a three dimensional array of optical voxels in a cubic packed configuration other voxels placement geometries may be utilized in this invention (figure 2 and 3C, col. 4, lines 64-67), a cubic optical voxels performs as an anode and a cathode corresponding to the claimed an anode of one of the pixels is shared by at least one other pixel. A side of

cubic optical voxels performs as a first anode of a first green light emitting element of a pixel is connected to a second anode of a second green light emitting element in another pixel by a straight line bus connection along a seam in any direction in the three dimensional matrix.

As to claims 12 and 38, MacFarlane teaches red voxel 60, green voxel 62, and blue voxel 64 may be clustered together as shown in figure 6 (col. 6, lines 23-24), a three dimensional array of optical voxels in a cubic packed configuration other voxels placement geometries may be utilized in this invention (figure 2 and 3C, col. 4, lines 64-67), a cubic optical voxels performs as an anode and a cathode corresponding to the claimed an anode of one of the pixels is shared by at least one other pixel. A side of cubic optical voxels performs as a first anode of a first blue light emitting element of a pixel is connected to a second anode of a second blue light emitting element in another pixel by a straight line bus connection along a seam in any direction in the three dimensional matrix.

As to claims 13 and 39, MacFarlane teaches a three dimensional array of optical voxels in a cubic packed configuration other voxels placement geometries may be utilized in this invention (figure 2 and 4A, col. 4, lines 64-67). A cubic optical voxels performs as an anode and a cathode corresponding to the claimed a first cathode of a first pixels is connected to a second cathode of a second pixel by a straight line connection along a seam in any direction in the three dimensional matrix.

As to claim 28, MacFarlane teaches a three dimensional array of optical voxels in a cubic packed configuration other voxels placement geometries may be utilized in this

invention (figure 2 and 4A, col. 4, lines 64-67). A cubic optical voxels performs as an anode and a cathode corresponding to the claimed a cathode of one of the pixels is shared by one other pixel.

As to claims 21-23 and 46-48, MacFarlane teaches specific voxels are selected for activation by switching network 8. Computer 12 may control the switching nework 8, as well as other components of the three-dimensional monitor system (col. 6, lines 37-40). The three dimensional monitor of the present invention may also be combined with conventional two dimensional monitors, such as cathode ray tubes and television displays (col. 8, line 66 through col. 9, line 1).

As to claims 24 and 49, MacFarlane teaches a three dimensional array of optical voxels in a cubic packed configuration other voxels placement geometries may be utilized in this invention (figure 2 and 4A, col. 4, lines 64-67).

Allowable Subject Matter

6. Claims 14-18 and 40-44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: the distance between two adjacent anodes is a square root of two multiplied by a length of one side of a pixel, recited in claim 14. A distance between the first anode and the second anode of the first red light emitting element and the second red light emitting element is twice the length of one side of a pixel, recited in claim 15.

Conclusion

8. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 09/04/2002 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Kevin M. Nguyen** whose telephone number is **703-305-6209**. The examiner can normally be reached on MON-THU from 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard A Hjerpe** can be reached on **703-305-4709**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered response should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Kevin M. Nguyen
Examiner
Art Unit 2674

RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600